Deployment-related PTSD and Mild TBI in Service Members

March 24, 2016; 1-2:30 p.m. (ET)

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Webinar Details

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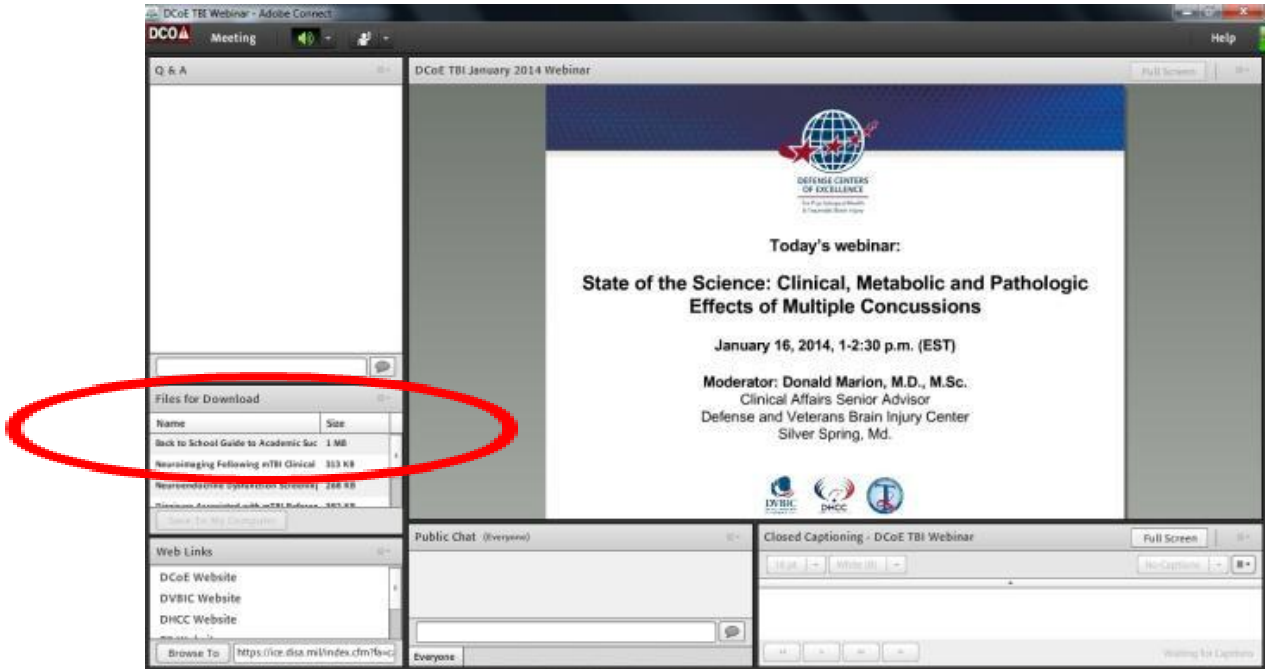

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- DCoE's awarding of continuing education (CE) credit is limited in scope to health care providers who actively provide psychological health and traumatic brain injury care to active-duty U.S. service members, reservists, National Guardsmen, military veterans and/or their families.
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- This continuing education activity is provided through collaboration between DCoE and Professional Education Services Group (PESG).

- Credit Designations include:
  - 1.5 AMA PRA Category 1 credits
  - 1.5 ACCME Non Physician CME credits
  - 1.5 ANCC Nursing contact hours
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  - 1.5 APA Division 22 contact hours
  - 0.15 ASHA Intermediate level, Professional area
  - 1.5 CCM hours
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Continuing Education Accreditation

Physicians

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Professional Education Services Group and the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCOE). Professional Education Services Group is accredited by the ACCME to provide continuing medical education for physicians. This activity has been approved for a maximum of 1.5 hours of AMA PRA Category 1 Credits™. Physicians should only claim credit to the extent of their participation.

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Continuing Education Accreditation

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Continuing Education Accreditation

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Webinar Overview

Mild traumatic brain injury (mild TBI) or concussion has been identified as a hallmark injury of the Afghanistan and Iraq wars. This review addresses the impact of mild TBI on the development, course and clinical management of PTSD. Research efforts take into consideration the potential differential impact of PTSD and mild TBI with or without persistent cognitive deficits. Findings have shown the impact of mild TBI on response to existing PTSD treatment interventions, and development and examination of potential treatment augmentation strategies.

Understanding the epidemiology, diagnostic evaluation and clinical management of common physical symptoms can benefit both physical and psychological health. The goal of this webinar is to share current research and treatment practices related to post-deployment PTSD symptoms, including those attributed to mild TBI.

At the conclusion of this webinar, participants will be able to:

- Identify potential mechanisms underlying high rates of comorbidity of deployment-related PTSD and mild TBI.
- Recognize challenges in differentiating the etiology of overlapping symptoms.
- Apply treatment considerations when PTSD manifests in patients with a history of deployment-related mild TBI.

Jennifer J. Vasterling, Ph.D.

Jennifer J. Vasterling, Ph.D.

- Chief of psychology at VA Boston Healthcare System and professor of psychiatry at Boston University School of Medicine
- An affiliated investigator of the Behavioral Science Division of the VA National Center for PTSD
- Trained as a clinical neuropsychologist, research has centered on the neurocognitive and emotional changes that accompany war-zone deployment
- Edited several books, the most recent of which addresses co-morbid PTSD and mild traumatic brain injury
- Awarded the 2009 Distinguished Scientific contributions Award by Division 56 (Trauma Psychology) of the American Psychological Association
- Served on a number of journal editorial boards and as a consultant to the Institute of Medicine
- Currently serves as president of the Society for Clinical Neuropsychology (Division 40 of the American Psychological Association)
- **Education**
  - Post- Doctoral Fellowship, Boston VAMC, Clinical Neuropsychology
  - Ph.D. from Vanderbilt University, Psychology
  - B.S. from Louisiana State University, Psychology

Deployment-related PTSD and Mild TBI in Service Members

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Posttraumatic Stress Disorder

BOSTON UNIVERSITY

Disclosure

- Dr. Vasterling has no relevant financial relationships to disclose.
- The views expressed in this presentation are those of the authors and do not necessarily reflect the official policy or position of the Department of Defense, Department of the Veterans Affairs nor the U.S. Government.
- The description of programs in this presentation is for descriptive purposes only and not intended to promote any individual program.

Overview

- Clarifications
- Epidemiology
- Mechanisms leading to comorbidity
- Clinical implications: assessment
- Clinical implications: treatment

Clarifications

TBI

TBI vs. On-going PCS

Blast Exposure vs. Blast TBI

Blast TBI vs. Deployment TBI

TBI v. Postconcussive Symptoms

TBI = pathophysiological injury

PCS = expression of symptoms following mild TBI

Post-mTBI:	Clinical presentation:
0-72 hrs	Symptoms at worst
1-3 months	Symptoms resolve
3 months	Full recovery

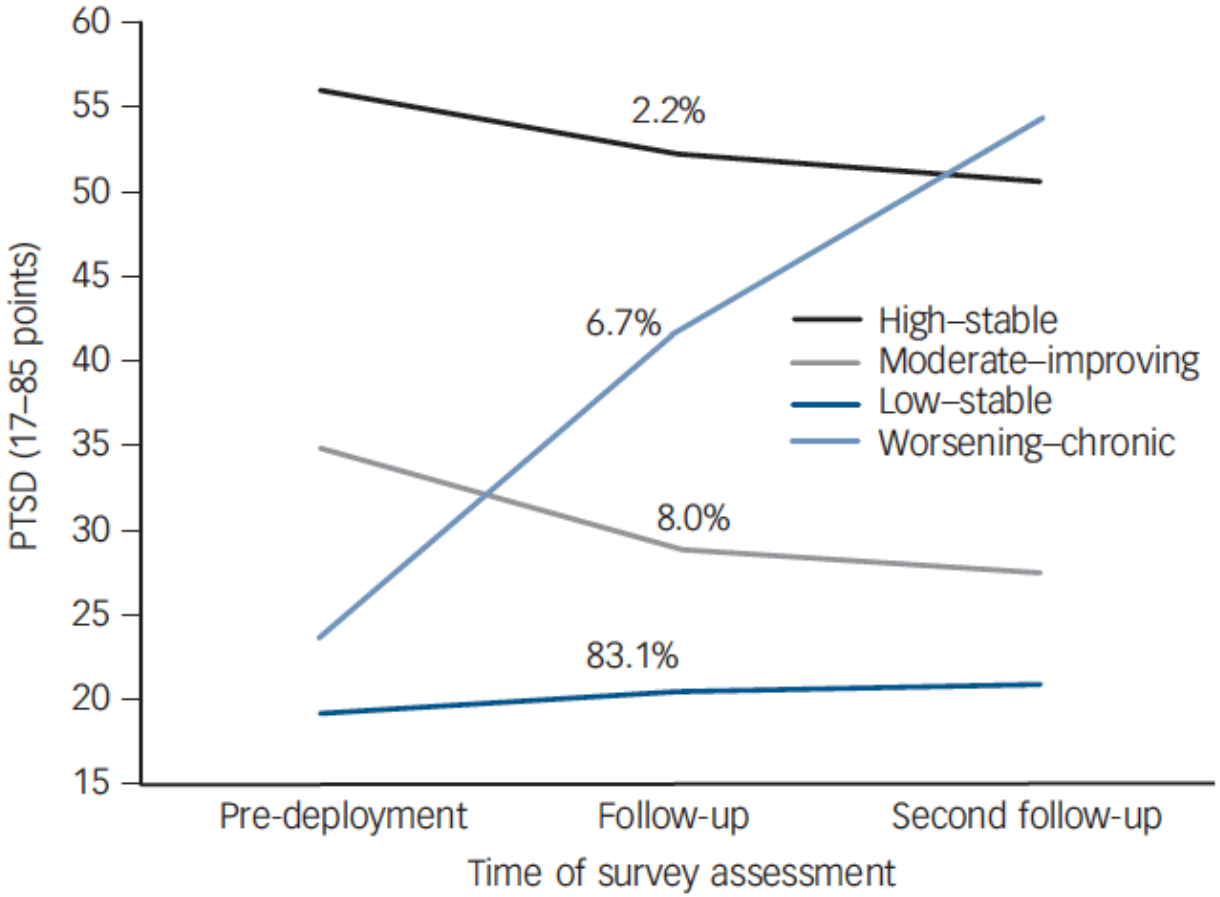
PTSD

Stress vs. Trauma

Exposure vs. PTSD

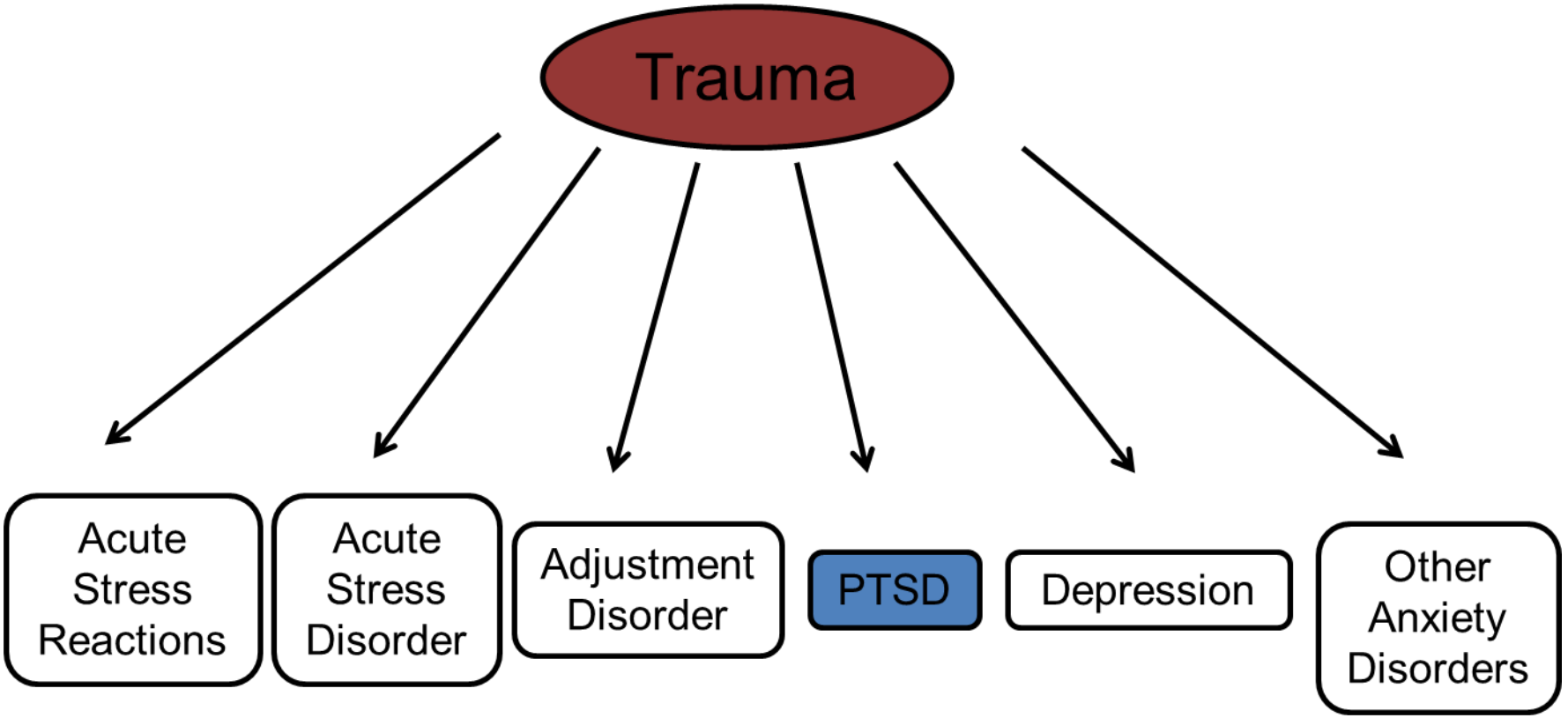
Acute vs. Chronic

One Size Doesn't Fit All



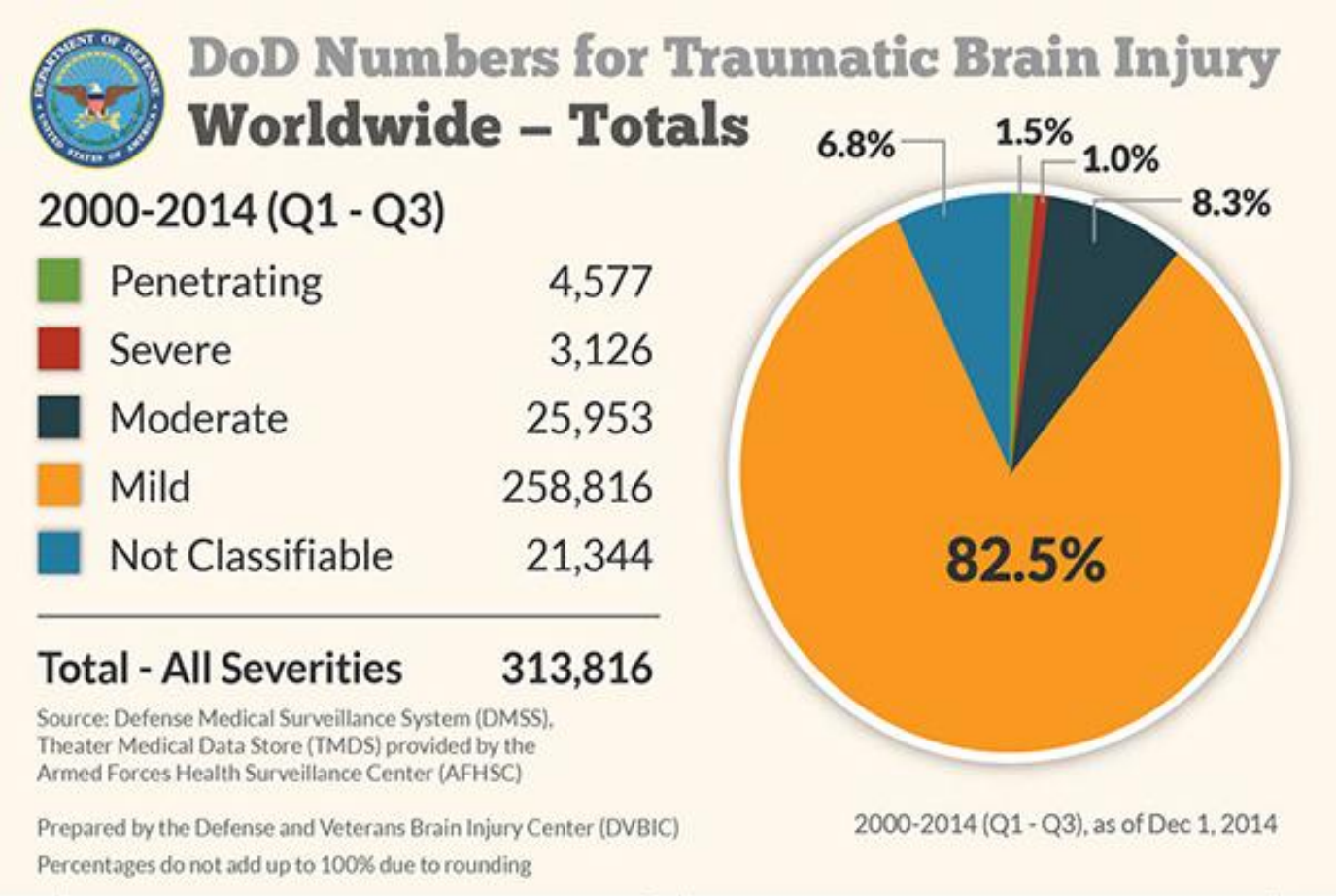
Bonanno et al. ,2012

Spectrum of Psychological Trauma Reactions

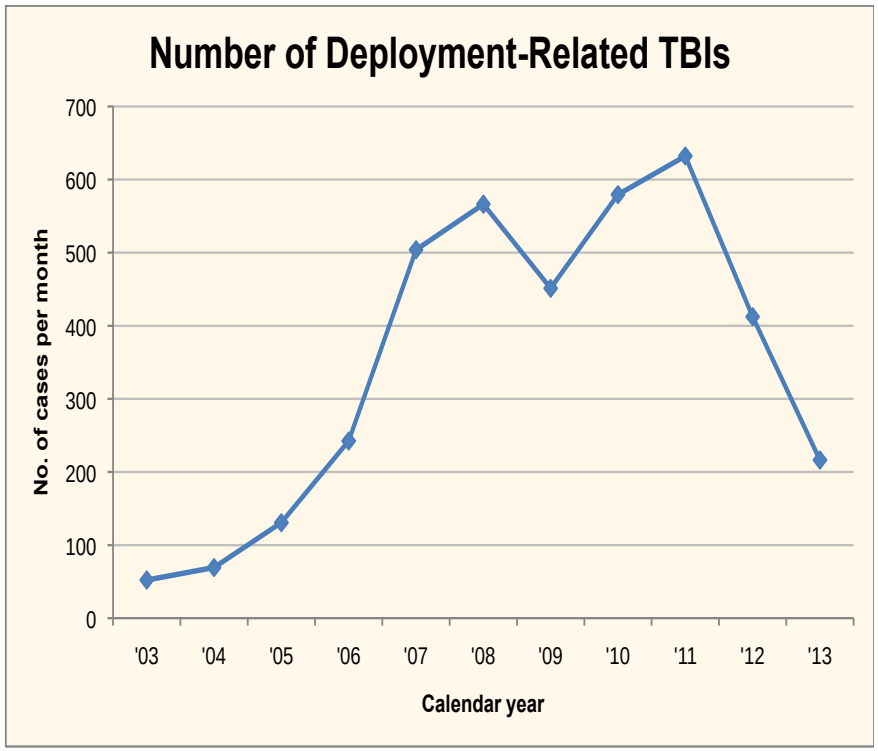


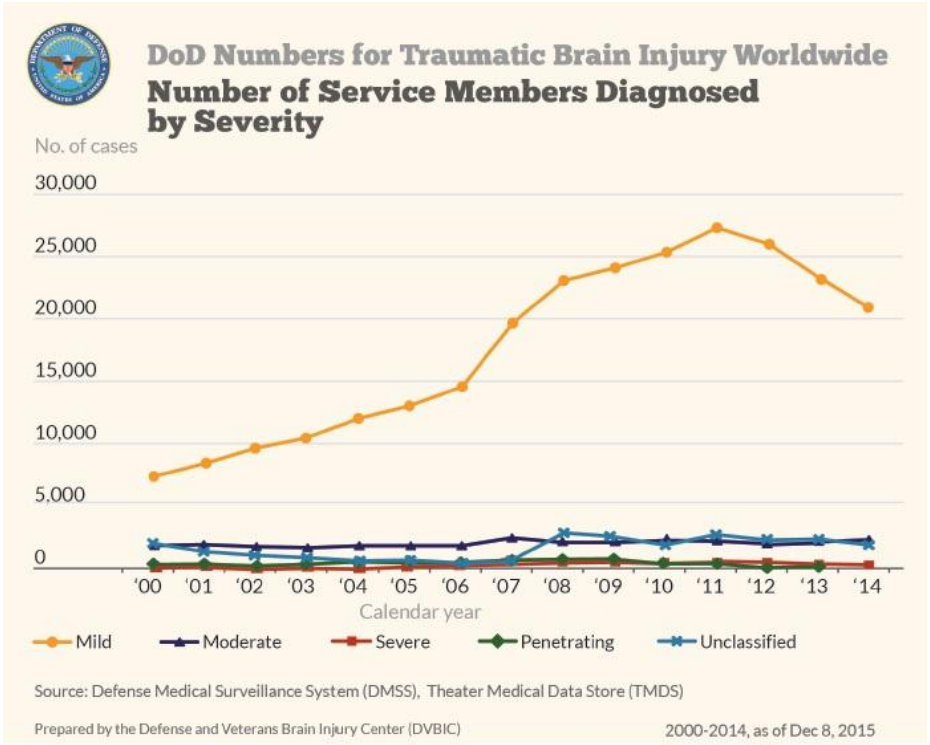
Epidemiology

DoD Traumatic Brain Injury Data



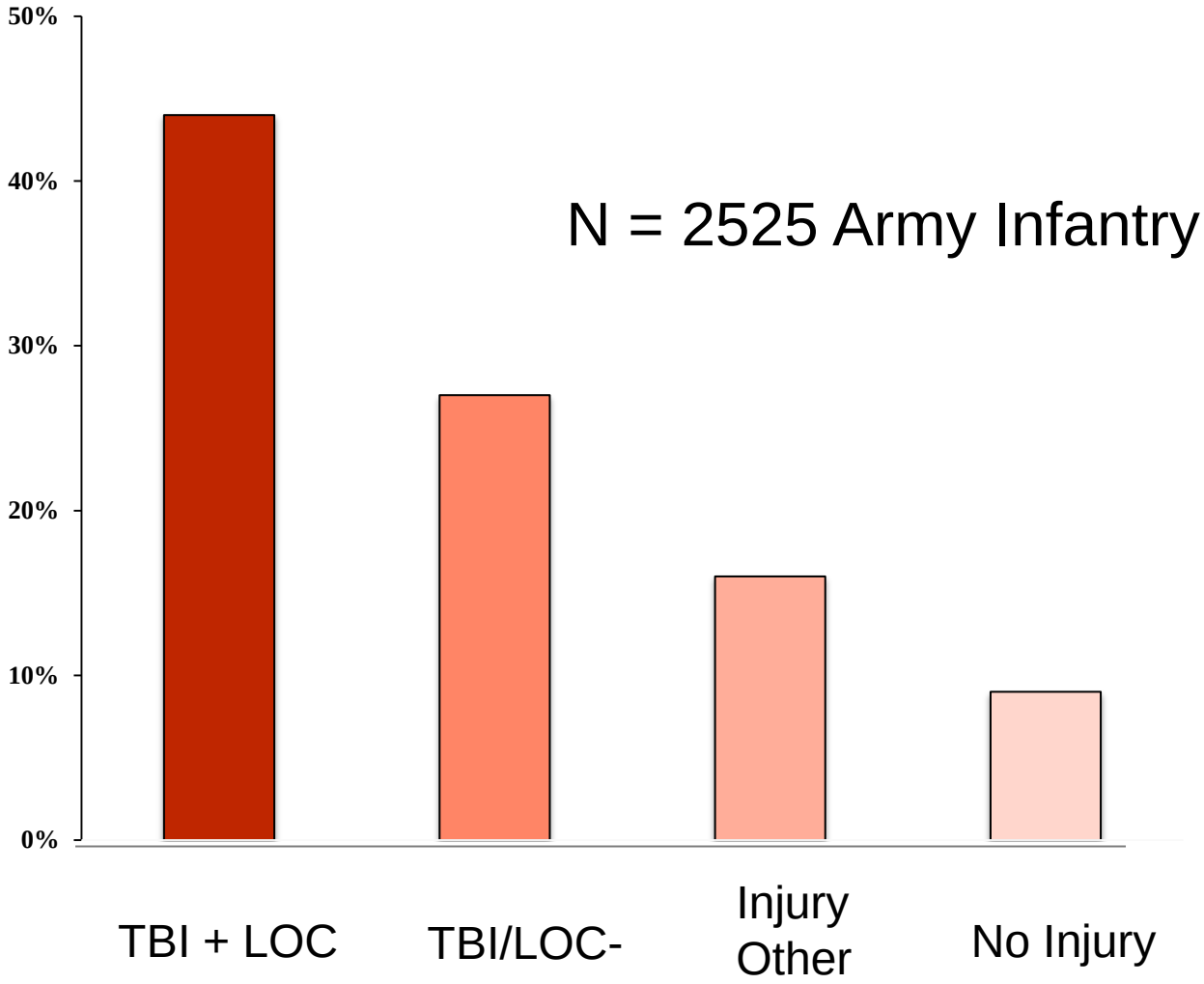
Deployment TBI by Year





PTSD by Injury Type

PTSD



Hoge et al., 2008

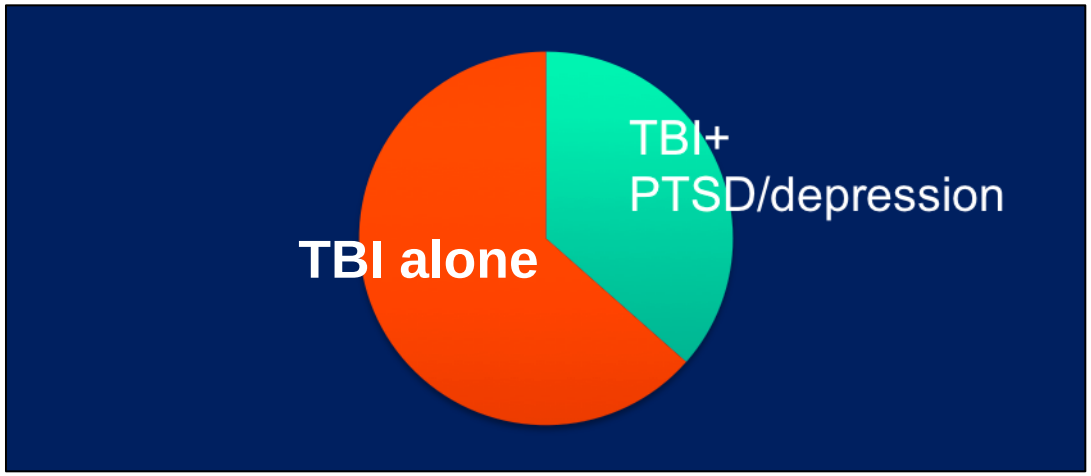
PTSD: Scope of the Problem

- >2.7 million U.S. service members deployed since 9/11
- By 2015, >128,000 new DoD cases of PTSD in OEF/OIF deployed service members
- 10-18% report PTSD (range: 0-68%)
- Cost estimates PTSD and depression (1st 2 years): $6.2 billion

Comorbid TBI and PTSD: Military Epidemiology

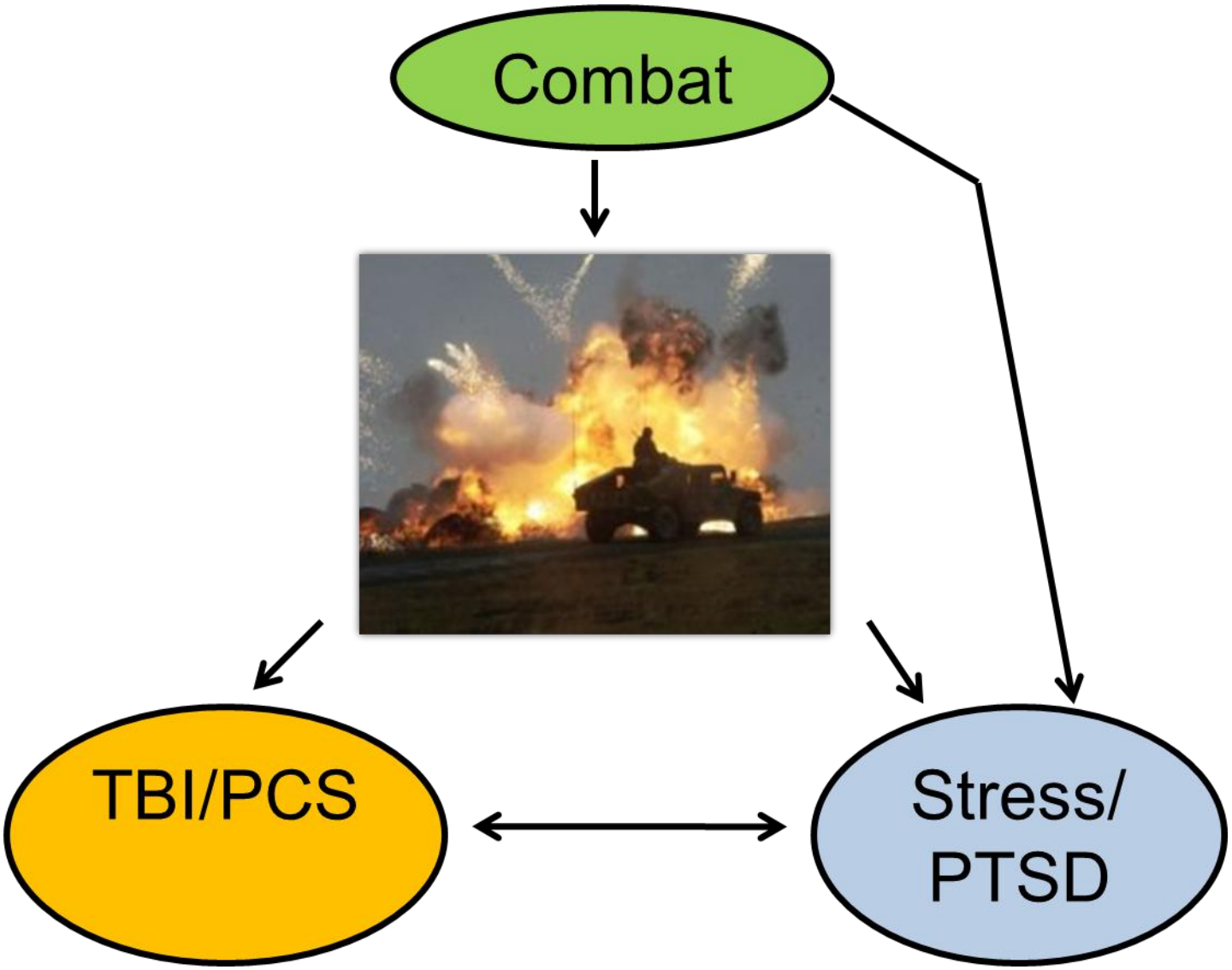
- Tanielian & Jaycox (2008):

Probability sample, weighted for potential selection biases



~ 19.5% reported TBI

Co-morbidity: Potential Mechanisms



http://msbia.org/VeteransandBrainInjuries.htm

Does TBI Increase Risk of PTSD?

- n = 1084 civilians with traumatic injuries

At 12 mos., mild TBI patients ~2x more likely to develop new:

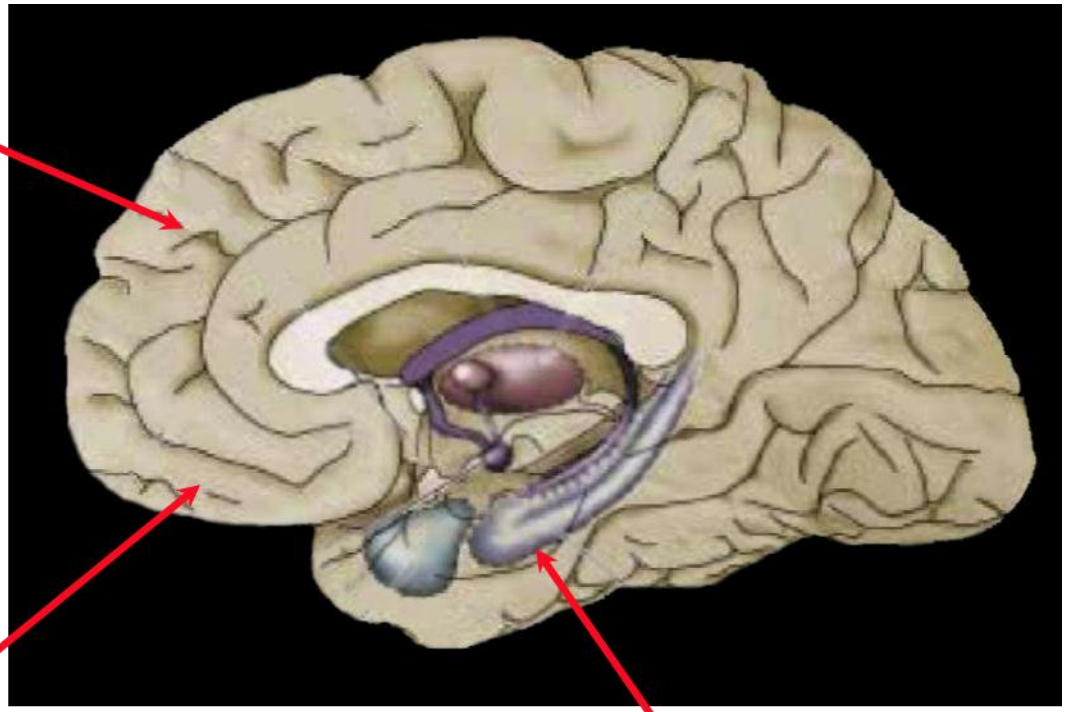
	Adj OR	CI
PTSD	1.92	1.08, 3.40
Panic	2.10	1.03, 4.14
Social Phobia	2.07	1.03, 4.16
Agoraphobia	1.94	1.13, 3.39

Functional impairment related to psychiatric status.

Bryant et al., 2010

How does TBI impede emotional recovery?

Dorsolateral Frontal Cortex



Orbital Frontal Cortex

Hippocampus

http://www.nimh.nih.gov/news/science-news/2004/depression-traced-to-overactive-brain-circuit.shtml

Possible Neurocognitive Mechanisms

- Altered memory formation for the event and associated emotions, leading to poorly controlled recall of the event (i.e., re-experiencing symptoms)

- Changes in cognitive control may lead to emotional dysregulation.

Memory for Blast Events

N = 75 blast exposed veterans (50 TBI; 25 no-TBI)

Autobiographical narratives of blast event

Analyses adjusted for combat severity and PTSD severity

- Coherence: TBI < no-TBI
- Episodic details: TBI > no-TBI

Palumbo et al., 2015, Neuropsychology

Does Emotional Distress Impede Recovery from Mild TBI?

Ponsford et al., *Neuropsychology,* 2012

n = 123 mild TBI; n = 100 no-TBI trauma

Predictors	**PCS 1 week**	**PCS 3 mo.**
TBI	+	--
PTA duration	--	--
1 wk cognitive performance	--	--
3 mo cognitive performance	n/a	--
Pre-injury psych hx	+	+
1 week anxiety sx	+	+
3 month anxiety sx	n/a	+
3 month PTSD sx	n/a	+

Longitudinal Outcomes of Blast Concussion

- N = 38 blast concussion; N = 34 controls
- Time 1: 0-7 days post injury; Time 2: 6-12 months later
- Using ROC, best fit for predicting 6-12 month TBI outcome (Glasgow Coma Scale-Extended) included:

  Depression, PTSD, combat severity, and age

MacDonald et al., 2015

How does emotional distress impede recovery from TBI?

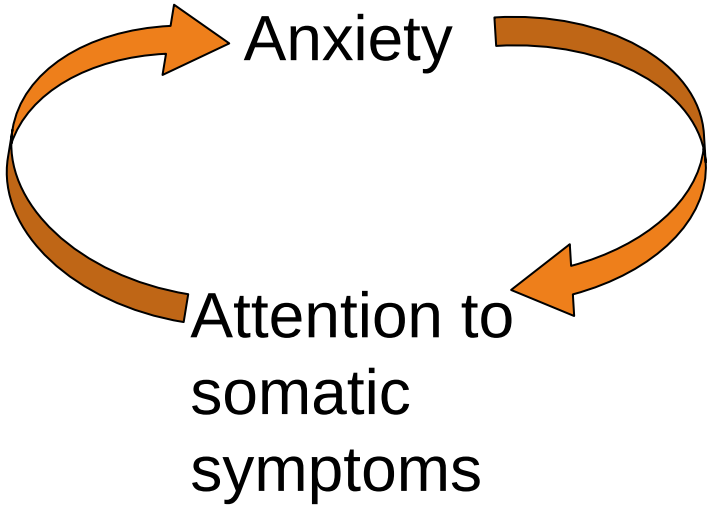
Resilience

- Psychiatric status can affect resilience

Resilience - "adaptive coping, optimism and positive emotion, cognitive re-appraisal, positive reframing and acceptance, social competence and support, purpose in life" (Iverson)

Somatic Pre-Occupation

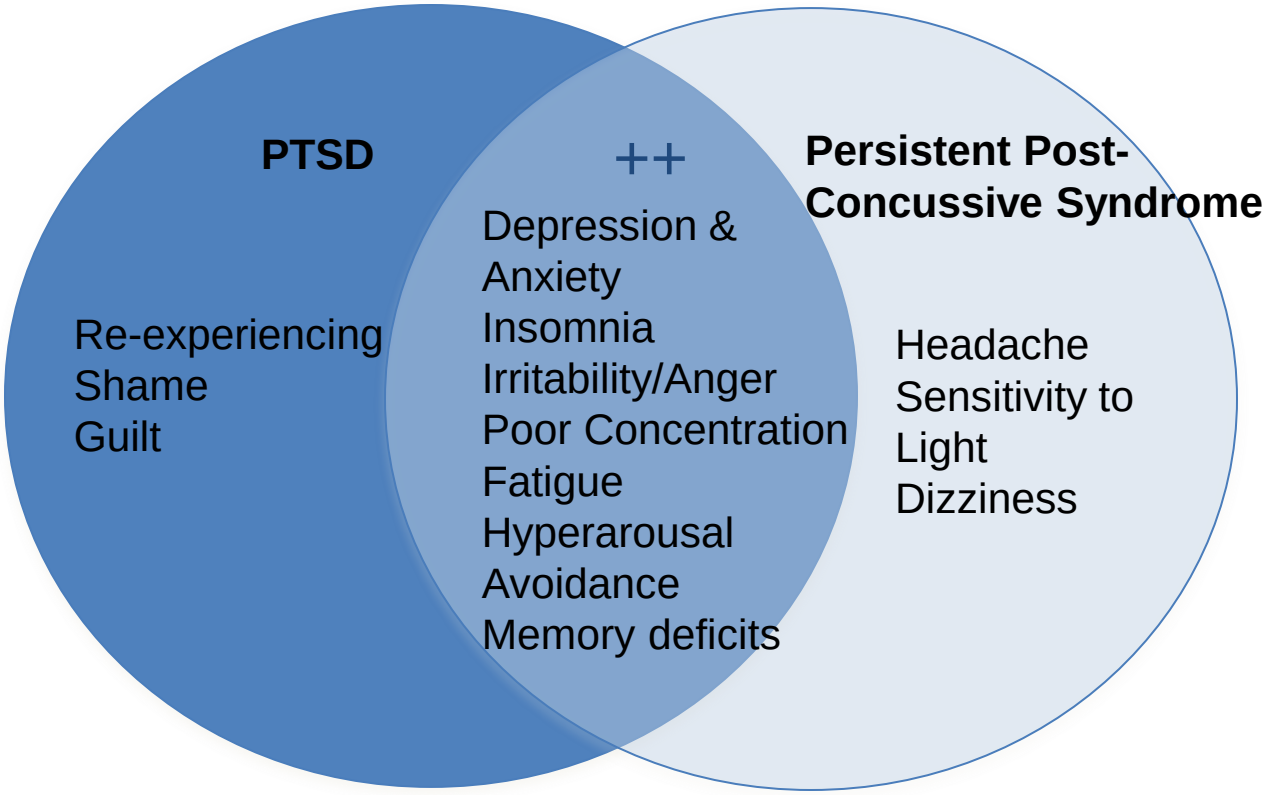
- Increased somatic pre-occupation (especially for anxiety disorders)



Clinical Implications: Assessment

Overlapping Symptoms

- Overlap with co-morbidities (and the psychometric scales that measure them)



Adapted from: Stein & McAllister (2009*). Am J Psychiatry:* 166, 768-776

Predictors of Cognitive Decline Over Deployment

Baseline assessment — Iraq — Post-deployment assessment

N = 760 Army Soldiers
(n = 68 TBI-D+; n= 692 no TBI-D)

Photo courtesy of: Jennifer Vasterling

Vasterling et al., 2012

Study Findings

- TBI: decrements in:
  health related functioning

- PTSD: decrements in:
  neuropsych performance
  cognitive functioning
  health related functioning

- TBI x PTSD: no significant interactions

- TBI attributes/prior TBI: not associated with outcomes

Vasterling et al. (2012) *Br J Psychiatry*

Threats to Diagnostic Validity

- Symptoms:

  Attributional errors (e.g., “good old days”)

  Measurement overlap

  Contextual influences on reporting/performance

- Event reporting:

  Lack of witness reports

  Chaotic event environments

  Autobiographical recall biases and deficits

www.theodoresworld.net

TBI Recall Stability

- N = 400 soldiers from NDHS cohort
- Screened for TBI during index deployment twice:

  Time 1: post-deployment

  Time 2: 5-7 years later
- Results:

  Kappa = 0.53

  Post-deployment PTSD → Discordance ($p < .0001$)

Alosco et al.,2015

Clinical Implications: Treatment

When is Etiology of Symptoms Less Important?

- Treatment of cognitive deficits and non-specific symptoms via cognitive rehab and psychoeducation

- Examples:

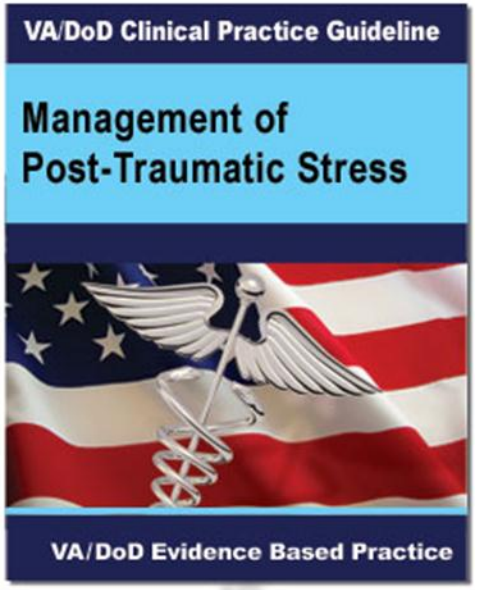
  CogSMART (Twamley et al., JRRD, 2014)

  Cognitive Strategy Training (Huckans et al., JRRD, 2010)

Clinical Implications: When Does Etiology of Symptoms Matter?

- Treatment of PTSD

Illustration by Chris Gash



- Psychoeducation for TBI

Psychosocial Interventions for PTSD and Related Disorders

Psychosocial Interventions for PTSD and Related Disorders

Cognitive Behavioral Therapy (CBT) for PTSD and Related Disorders

Cognitive components

Target distorted, maladaptive thoughts with the goal of reappraisal to allow more effective responses

Exposure:

Exposure to trauma reminders and the trauma memory in a safe context with the goal of modifying the memory to form new emotional associations

Co-morbid TBI: Can I Treat PTSD and Related Disorders as Usual?

- Does TBI contraindicate PTSD treatment?
- Are standard evidence-based treatments for stress-related disorders effective when there is a TBI?
- Does TBI attenuate treatment response?
- Should interventions be modified or augmented when there is history of TBI?

Does TBI contraindicate PTSD interventions?

No

- CBT interventions, including prolonged exposure, have been applied across mild, moderate, and severe TBI for PTSD

  Sripada et al., 2013; Walter et al., 2014; Wolf et al., 2012; Wolfe et al., 2015

- Only a single case report of TBI with severe dysexecutive syndrome noted problems with exposure-based treatment

  King (2002)

Is CBT effective following mild TBI?

- CBT for acute stress symptoms after mild TBI reduces risk of subsequent PTSD

  Bryant et al., 2003

- CBT has been effectively applied to a range of post-concussive symptoms (e.g, insomnia, social anxiety)

  Hodgson et al., 2005; Mittenberg et al., 1996; Ouellet & Morin, 2007

- Both cognitive processing therapy and prolonged exposure effective for treatment of PTSD following TBI

  Sripada et al., 2013; Walter et al., 2014; Wolf et al., 2012; Wolfe et al., 2015

Does TBI attenuate treatment response?

- Mild TBI had no significant effect on response (PTSD symptom reduction) to PE in 51 Veterans receiving PE in a VA PTSD clinic or in 22 Veterans participating in an RCT of PE v. present centered therapy.

  Sripada et al., 2013

- No significant difference in treatment adherence to CPT for combat-related PTSD, as a function of mild TBI.

  Davis et al., 2013

- Treatment gains in for PE were actually larger in Veterans with moderate to severe TBI, as compared with mild TBI.

  Wolfe et al., 2015

Should interventions be “modified” or augmented?

- “Modification”

  e.g., reminders, slower progression of session content

- Augmentation

  e.g., cognitive rehabilitation, psychoeducation,

  intensive inpatient settings

- On-going clinical trial: CogSmart + Cognitive Processing Therapy for treatment of co-morbid PTSD and TBI (PI: A. Jak)

Inpatient Rehabilitation as an augmentation to Prolonged Exposure

Predictor Variables	PTSD PCL-C
ITT Effect Sizes	d = 1.46
Tampa v. Durham	1.77%
TBI Severity	0.30%
Inpatient v. Outpatient	0.49%
Staff v. Trainee	4.71%*
Completed PE Tx	15.29%**

Wolf et al. 2015

PTSD Treatments: Beyond PTSD Symptoms

- CBT for PTSD may improve cognitive performance and alter functional activation on fMRI

  (Roy et al., 2010; Thomaes et al., 2012)

- Preliminary multi-site findings suggest that PE addresses post-concussive symptoms and functioning, in addition to PTSD symptoms

(Vanderploeg, Bowles & Cooper, unpublished)

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QUESTIONS?

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For more information about PTSD:

http://www.ptsd.va.gov

THANK YOU!

Questions

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- The Q&A box is monitored and questions will be forwarded to our presenters for response.
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Next DCoE Traumatic Brain Injury Webinar:

Management of Headache Following Concussion/Mild Traumatic Brain Injury: Guidance for Primary Care Management in Deployed and Non-Deployed Settings

April 14, 2016; 1-2:30 p.m. (ET)

Next DCoE Psychological Health Webinar Theme:

Prevention of Sexual Assault in Children

April 28, 2016; 1-2:30 p.m. (ET)

Save the Date

2016 Summit Call for Abstracts:

The Summit's Call for Abstracts is now open. Please submit your abstract by April 11th at http://dcoe.am.pesgce.com/.

Summit registration and continuing education information will be available soon.

2016 Summit State of the Science: Advantages in Diagnostics and Treatments of Psychological Health and Traumatic Brian Injury in Military Health Care

September 13 – 15, 2016

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